Melbourne Water Nursery Inspection Audit Checklist

Supplier (nursery)		Date of audit	
Address		Melbourne Water Auditors name	
Nursery business representative		Melways ref	

The following symbol **'*'** in the tables below indicates a mandatory or non-negotiable condition.

Industry accreditation / Policies

1.0	Condition		Met		Comments (Eg: Working towards, no knowledge of or N/A)
			Yes	No	
1.1	NIASA accreditation	*			
1.2	EcoHort™ system in place	*			
1.3	Business Environmental Policy	*			
1.4	OH&S policy	*			

This audit form references the Nursery Industry Accreditation Scheme, Australia (NIASA, 2016) procedures.

The NIASA provides industry recognised best practice standards for production nurseries and a process for them to be recognised by the nursery industry.

This audit is not a NIASA audit and is a communication tool between Melbourne Water and suppliers to projects under Melbourne Water oversight.

Nursery administration

2.0	Condition		Met		Comments (Eg: Being upgraded, needs attention, rectification required or N/A)
			Yes	No	
2.1	Seed bank/ propagule database/inventory & records are present and detail the following:	*			
2.2	Seed collection records are present and detail the following:	*			
2.3	Provenance (unique identifier) -location, name and map reference recorded	*			
2.4	Genetic diversity (location and number of parent plants)	*			
2.5	Name of collector & permit number (DELWP)	*			
2.6	Number of parent plants collected from each site	*			

2.7	Quantity collected (field volume and post cleaning amount should be noted)	*			
2.8	Site status (Land owner, remnant or revegetation population etc.)	*			
2.9	Parent Soil Type	*			
2.10	EVC	*			
2.11	Timing of seed crop (early, peak or post maturity).	*			
2.12	Evidence of Flora Bank guideline use	*			
2.13	Storage records are present and detail:	*			
2.14	Seed lot data tracked into nursery & despatch	*			
2.15	Nursery stock inventory present and updated regularly	*			
2.16	Nursery production records present and updated regularly	*			
2.17	Nursery stock is labelled	*			
2.18	Records kept >3years	*			
2.19	Delivery dockets meet requirements	*			
2.20	Photos of delivered plants recorded	*			
2.21	Chemical usage records kept and available (chemical register kept and maintained)	*			
2.22	Nursery monitoring records kept and available	*			
2.23	Staff training and qualification records kept, available and updated regularly.	*			
2.24	Irrigation records kept and available	*			
2.25	Maintenance records kept and available	*			
2.26	Emergency plan present and available to employees.	*			

2.27	Other records (eg OH&S)	*			

Growing areas and cultural practice

3.0	Condition		Met		Comments (Eg: Being upgraded, needs attention, rectification required or N/A)
			Yes	No	
3.1	Awareness of MW Aquatic plant supply standards – part of employee induction?	*			
3.2	Awareness of pest and disease threats (staff training) part of employee induction?	*			
3.3	Water quality monitoring/testing records are kept and up to date.	*			
3.4	If water treatment is in place what is the method? Records are kept and up to date.	*			
3.5	Growing area drainage is appropriate	*			
3.6	Environmental control plan exists, is up to date and has been implemented	*			
3.7	Hardening off area - plants are acclimatised to leave the nursery	*			
3.8	Submerged aquatic plant growing facility is present and acceptable	*			

Growing media

4.0	Condition		Met		Comments (Eg: Being upgraded, needs attention, rectification required or N/A)
			Yes	No	
4.1	Accredited supplier is used – records are kept and available	*			
4.2	On site disinfection occurs, records kept	*			
4.3	Storage area is isolated, ensuring protection from weed seed and soil infection	*			
4.4	Batch testing and/or supplier chemical analysis records are available	*			

Hygiene protocols

5.0	Condition		Met		Comments (Eg: Being upgraded, needs attention, rectification required or N/A)
			Yes	No	
5.1	Propagation area – kept clean, benches wiped down, tools disinfected and green waste removed from the area daily. Records kept.	*			
5.2	Vehicle hygiene protocols are in place	*			
5.3	Container washing areas are clearly identified, hygiene procedures are in place, and records are kept.	*			
5.4	Refuse disposal/management is present and adequate	*			
5.5	Biosecurity threats (weed, pest and disease) protocols are present, implemented, records are kept.	*			

5.6	Quarantine area is identified and procedures documented	*			
5.7	General cleanliness	*			

Integrated Pest Management

6.0	Condition		Met		Comments (Eg: Being upgraded, needs attention, rectification required or N/A)
			Yes	No	
6.1	Insect management exists, has been implemented with records kept.	*			
6.2	Insect Monitoring occurs and is documented	*			
6.3	Evidence of insect damage recorded	*			
6.4	Disease management plan exists with records kept	*			
6.5	Disease Monitoring records are kept	*			
6.6	No evidence of disease on site	*			
6.7	Chemical usage protocols are in place with records kept	*			
6.8	No weeds present in nursery stock	*			
6.9	No lichen and liverworts present in nursery stock	*			
6.10	Exotic fish management plan exists, has been implemented with records kept	*			

General site management

7.0	Condition		Met		Comments (Eg: Being upgraded, needs attention, rectification required or N/A)
			Yes	No	
7.1	Nursery plan showing:	*			
7.2	Entry/exits	*			
7.3	Production areas	*			
7.4	Chemical storage and wash-down areas	*			
7.5	Pathways/roads	*			
7.6	Irrigation system, isolation and shut off.	*			
7.7	Water storages	*			
7.8	Materials storage areas	*			
7.9	Buildings	*			

7.10	Emergency assembly points and exits	*			
7.11	Off-site sensitive areas (no go zones)	*			
7.12	Facility layout is orderly and organised	*			
7.13	Chemical storage is present and acceptable	*			
7.14	Chemical safety management exists with records kept	*			
7.15	Water management plan exists	*			
7.16	Irrigation controls are present	*			
7.17	Appropriate water reuse occurs	*			
7.18	Water discharge protocols exist and are appropriate	*			
7.19	Delivery area is sufficient	*			
7.20	Capability to “pop” cell grown plants	*			
7.21	Other	*			

NOTES

	Other comments on nursery facility

Items of non- compliance

Item	Severity			Action required
	High	Medium	Low	

Signed: _____ Date:____/____/____.

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Appendix A: Project specific stock quality assessment (completed by landscape consultant for each project)

Condition		Met		Comments (Eg: Rectification required or N/A)
		Yes	No	
Project specific stock is identified in nursery	*			
Species ordered are available in quantities specified.	*			
Project species list assessed at nursery and accepted	*			
Well grown root-ball to plant format specification met	*			
Height of plant matches container and species.	*			
Plant age - Aquatic plants (absence of root bound or any stock >2 years old).	*			
Plant age - terrestrial plants (absence of root bound or any stock >1 years old).	*			
Plants appear healthy with appropriate form and stem/leaf turgor.	*			
Sedges and rushes in 550cm3 pots have total stem area covering at least 50% of the pot surface area with evidence of new stems arising from rhizomes.	*			
Plants are being acclimatised to site conditions.	*			
Plants are being hardened off prior to delivery to site				
No presence of insect pests	*			
No presence/impact of disease	*			
No presence of weeds, moss, liverworts.	*			
No presence of exotic fish in production systems	*			
Origin of genetic material is known and suitable to project (seed collection records available, provenance etc)	*			
Nursery plants have labels showing species, propagation date and genetic origin.	*			
Plant storage appropriate	*			
Other	*			

Appendix B: Plant supply formats.

Growing formats for species specified in the *Wetland Design Manual. Part A2: Deemed to comply design criteria*.

See the manual for the correct zonation information for each species.
Species not on the list below can only be used if approved by Melbourne Water and the growing format suits their morphology.

(**Note:** Y = acceptable growing format)

Format	**>90cm3 cell** **eg V93 Hiko**	**200cm3 Tube**	**Min. 550cm3 container**	**Minimum leaf height** **(mm)**	**Comments**
Baumea articulata	N	N	Y	400mm	
Baumea rubiginosa	N	Y	Y	300mm in >90cm3 cells, 500mm in 200cm3 tubes or >550mm pots	V93 Hiko only suitable for Ephemeral zone Acceptable substitute Baumea arthrophylla
Bolboschoenus caldwellii	N	Y	Y	400	Plants must have grown to 400mm in the container supplied to site before dormancy.
Bolboschoenus medianus	N	Y	Y	400	Plants must have grown to 400mm in the container supplied to site before dormancy.
Carex appressa	Y	Y	N	200	
Carex fasicularis	Y	Y	N	200	
Carex tereticaulis	Y	Y	N	200	
Cladium procerum	N	Y	Y	400	
Crassula helmsii	Y	Y	N	100	
Eleocharis acuta	N	Y	Y	250	
Eleocharis sphacelata	N		Y	400	
Juncus species	Y	Y	N	200	*Juncus amabilis, J flavidus, J gregiflorus, J krausii, J pallidus, J procerus, sarophorus, J usitatus etc.*
Lomandra longifolia	Y	Y		200	
Myriophyllum crispatum	N	Y	Y	250	Plants must be protected from desiccation during transport
Myriophyllum sp	N	N	Y	250	Submerged aquatic *Myriophyllum* sp (eg *M caput-medusae*, *M. salsugineum*, *M. verrucosum*) must be protected from desiccation during transport.
Persicaria decipiens	Y	Y	N	200	
Poa labillardierei	Y	Y	N	200	
Potamogeton ochreatus	N	N	Y	250	Plants must be protected from desiccation during transport
Schoenoplectus tabernaemontani	N	N	Y	400	
Cycnogeton Procerum (syn. Triglochin procerum)	N	N	Y	250	More than 6 leaves and tubers formed on roots.
Vallisneria americana	N	N	Y	300	Plants must be protected from desiccation during transport

Appendix C: Seasonal planting risk

The table below shows months where the conditions most suit the individual species.

Conditions during winter and spring for shallow and deep marsh plants have a higher risk and chance of plant mortality as they are likely to experience extended length of elevated water levels while in they are dormant (not emergent). The risk is also very high for young plants which are more susceptible to drowning.

Some aquatic species have lower growth productivity due to colder conditions with some species such as *Bolboschoenus* sp undergoing winter dormancy. These plants are at risk for longer periods of time if planted in winter as they are not able to take root and support themselves.

Installation of ephemeral species in summer has a higher risk for installation as they are more likely to experience desiccation.

Mitigation strategies must be in place if contractors want to install plants in the higher risk months shown in the table below.

Species	**Planting season**		**Preferred months**		**High risk months**							
	January	**February**	**March**	**April**	**May**	**June**	**July**	**August**	**September**	**October**	**November**	**December**
Baumea articulata												
Baumea rubiginosa												
Bolboschoenus caldwellii												
Bolboschoenus medianus												
Carex appressa												
Carex fasicularis												
Carex tereticaulis												
Cladium procerum												
Crassula helmsii												
Eleocharis acuta												
Eleocharis sphacelata												
Juncus species												
Lomandra longifolia												
Myriophyllum crispatum												
Myriophyllum sp												
Persicaria decipiens												
Poa labillardierei												
Potamogeton ochreatus												
Schoenoplectus tabernaemontani												
Cycnogeton procerum (syn. *Triglochin procerum)*												
Vallisneria americana												

Table 1: Seasonal planting risks for aquatic species

Appendix D: Minimum information to be supplied with deliveries.

1. Nursery name and contact information
2. Project name
3. Date
4. Delivery number (if multiple deliveries to project)
5. Plant species name
6. Origin of genetic material (location)
7. Supply format (cell tray, container etc) quantities per species
8. Plant quantities (including container/cell tray #s) per species
9. Propagation date
10. Dates and details of hardening off/and or acclimatisation processes
11. Nursery QA sign off
12. Photos of nursery batches (to be supplied with final invoice)

Example below:

Delivery docket

Project name & section #		**Supplier**	
EPMS #		**Address**	
Estate name & stage		**Telephone #**	
Delivery Docket #		**Nursery manager**	
Date		**ABN**	
Melways ref:		**Council**	
Asset owner (Melbourne Water or Council)		**Melbourne Water surveillance officer**	
Nursery QA sign off representative		**Nursery QA sign off date**	
Photos of nursery batches (to be supplied			

Species Name	**Planting Zone**	**Propagation date**	**Hardening off/and or acclimatisation processess dates**	**Provenance (Origin of genetic material (location))**	**Quantity required**	**Quantity supplied**	**Format required**	**Format supplied**	**Minimum height requirement met (Y/N)**	**Substitutions**
Baumea articulata	Shallow marsh									
Bolboschoenus caldwellii	Shallow marsh									
Bolboschoenus fluviatilis	Shallow marsh									
Bolboschoenus medianus	Shallow marsh									
Cladium procerum	Shallow marsh									
Eleocharis acuta	Shallow marsh									
Schoenoplectus tabernaemon	Shallow marsh									
Cycnogeton procerum	Shallow marsh									
Baumea articulata	Deep marsh									
Bolboschoenus caldwellii	Deep marsh									
Bolboschoenus fluviatilis	Deep marsh									
Bolboschoenus medianus	Deep marsh									
Cladium procerum	Deep marsh									
Eleocharis sphacelata	Deep marsh									
Schoenoplectus tabernaemon	Deep marsh									
Cycnogeton procerum (syn. Triglochin procerum)	Deep marsh									
Myriophyllum crispatum	Submerged marsh									
Potamogeton ochreatus	Submerged marsh									
Vallisneria australis	Submerged marsh									